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THE FEDERAL ROLE IN DEALING WITH THE BLACKBIRD PROBLEM

Whether the result of an "explosion" in our bird population, or in the population of human beings, it appears to be a fact that the collision rate between birds and man's interest is increasing. As the Nation's chief bird protector, I can detect this from the many evidences of a growing problem that cross my desk nearly every day. And while bird study and observation has always been one of my principal forms of recreation, I must confess that recently some birds, the flock birds in particular, have become a kind of psychological problem.

Your presence here tonight suggests that many of you view these birds as problems also, although admittedly your problems may be more financial than psychological.

In any event, it is in recognition of a changing situation in the bird-agriculture-people equation that I wish to discuss briefly the magnitude of the blackbird problem, current Federal policies and responsibilities for bird control, and the Bureau program that is concerned with blackbird depredations.

We are often asked, "Are blackbird populations increasing?" or "Why are blackbird populations increasing?" People tend to link increased crop damage with the idea that blackbird populations also have increased. Let us review history and get a perspective of the problem.

Presented by John S. Gottschalk, Director, Bureau of Sport Fisheries and Wildlife, U. S. Department of the Interior, at the North American Conference on Blackbird Depredation in Agriculture, Columbus, Ohio, March 30, 1967.

While few data are available about National blackbird population trends, Captain John Smith wrote about the abundance of red-wings at Jamestown in 1607, and the early colonists who settled in Delaware were so awed by the hordes of blackbirds that they named a town "Blackbird." Alexander Wilson, father of American ornithology, wrote in 1808--"the birds are seen like vast clouds, wheeling and diving over meadows and cornfields, darkening the air with their numbers. Then commences the work of destruction on the corn . . ."

Fragmentary evidence suggests that blackbird depredations on corn have existed for a long time in the upper Mississippi Valley. The Hopewell Indians raised corn in Ohio in 400 A.D., as did the Coles, Eries, and Delawares in later times. In southern Wisconsin the Indians picked and cured their corn while it was still in the milk, because of blackbird numbers. Meriwether Lewis, of Lewis and Clark fame, reported that blackbirds were numerous in the Missouri Valley and that Indian children were given the task of shooting them with bows and arrows. And to remind us of how the problem can really be frustrating, during colonial days in some towns on Cape Cod, a young man was forbidden by law to marry until he had given the town clerk a certain quota of blackbird heads!

I mention these historical notes to remind us that depredation problems, large blackbird populations, and frustrations, are not unique to our times!

Our biologists have estimated, with the assistance of State cooperators, that at least one-half billion blackbirds and starlings

occur today in continental United States--with redwings comprising about one-third of this total. We do not believe that this number represents a recent population explosion, but mainly reflects more knowledge about these populations.

Throughout colonization and development of the United States, land use changes have created conditions favorable for the expansion and increase of blackbird populations as well as conditions detrimental to these populations. An Ohio ornithologist, Harold Mayfield, recently has documented the spread of the cowbird into California, eastern United States, and Canada. In parts of their original range, however, cowbirds appear to be decreasing. Charles Dambach and Eugene Good, on the staff at Ohio State University, have data indicating dramatic increases in redwing breeding populations during the past 30 years in a study area in southwestern Ohio. These increases in Ohio are paralleled by reports from Illinois by the Grabers, who compared blackbird breeding populations in an area censused about 1907 and recensused 50 years later. Their data indicated a 100-percent increase in redwings, a 50-percent decrease in cowbirds, and a 12-percent decrease in grackles.

Born and reared in northeastern Indiana, I saw the starling spread in numbers across that State in the four-year period 1930-34. Originally introduced in 1898-91 in Central Park in New York City, the bird had reached the Rocky Mountains by 1946 and now, of course, is a common pest everywhere in the United States.

Blackbird population changes can be noted on a local basis, but only gross estimates can be made of continental population levels. The important point is not whether blackbirds have increased population levels. Rather, it is that blackbirds have caused and are causing serious problems under a variety of conditions.

Depredations problems have become more acute in certain areas, and the seriousness of the problem may or may not be related to changes in blackbird numbers. Greater concentrations of blackbirds and the resulting greater damage may be due to overall increases in the population, or it may be due to birds concentrating in certain areas for a variety of reasons, among which changes in land use rank near the top.

The redwing is highly adaptable and feeds on a wide variety of cultivated grains. The waste grain from modern agricultural practices probably contributes to larger blackbird populations through increased winter survival. Costs of crop production and bird protection are higher now for corn producers. The public and industry have developed higher standards for food, so that bird-damaged crops often are of less value or are not marketed. Finally, we are in an era of greater specialization with our "corn farmers," "rice farmers," and "livestock feeders." A producer might solve his blackbird problems by changing to another crop, but such a change could be costly and the value of a substitute crop less.

With this much for background, let us move on to the questions of philosophy and policy that control what we do about bird control. The Bureau of Sport Fisheries and Wildlife has an overall responsibility to all components of society for the proper management of wildlife resources--and migratory birds are wildlife resources. The redwinged blackbird, cowbird, and grackle are migratory species that are competing with man and have become pests of major economic importance. Controlling the depredations of these species means we must develop appropriate methods, and we must formulate Federal policies which permit needed control yet which protect the interests of all citizens. Under present policy it is legal for aggrieved parties to kill redwinged blackbirds, grackles, and cowbirds that are committing or about to commit crop depredations.

During recent years, officials, conservationists, and the public at large have come to recognize the growing needs for the direct control of certain problem species, when all other measures fail. We are aware of public attitudes for and against Federal participation in such endeavors, and we must make decisions that protect the resources, yet relieve damage situations. Our policy has been one of moderation, but as time has passed and the problem of man-bird relationships has taken on more significance in human economics and safety, the policies have been modified to permit greater flexibility of action. This flexibility, however, is held within certain guidelines; as Secretary Udall recently stated:

"The problems of today must be met with an ecological approach based upon the husbandry of all wildlife. This includes even those species which, at certain times and places, are either misplaced by land use or are concentrated in such numbers as to be regarded as pests."

Now to consider some factors that influence policy:

Ecological facts obviously are of primary importance. What we think should be done depends to a great extent on our ability to identify depredating blackbird populations on both their breeding and wintering grounds, on our ability to evaluate blackbird benefits as well as harm to man, and on our ability to predict the effects of control programs on such populations and the environment.

The economics of bird control certainly must be considered.

D. A. Chant, who advocates integrated systems of pest control, points out that the first step in considering the need for pest control is to determine the producer's margin of profit in order to assess the amount he can afford to lose to depredations. The next step is to determine how much he can afford to spend for protection. In short, it doesn't make much sense to spend a dollar to save a dollar's worth of grain, but if you can spend a dollar and save more than that, say \$1.25, then pest control may be worthwhile.

Technological advances also affect policy. The availability of safer, more selective, and more effective bird control techniques such as species-selective poison, a bird repellent safe for use on crops, would permit policy changes.

Social - political considerations have impact on policy decisions. Now, let's face it, there can be times when the ecological, economic, and technological facts would permit a change in policy. However, the great American public might take issue with a proposed new drastic course of action. Because this happens, it is important that the Nation's needs in the area of bird depredations control be made known and explained to the public.

Our present policy is based to a considerable degree on the concept of local control, of the individual farmer protecting his crop. Such a policy is reasonable and supportable as long as the species causing damage can be dealt with by the individual. But this is not always possible, as for example when a feedlot, cornfield, or even a building in a city is overwhelmed by blackbirds or starlings. The individual is hopelessly outnumbered, and community action is a must. Community action, however, requires that we can properly determine the segments of the blackbird population causing the problem; that we have documented beyond a doubt the economic need for the bird control; that the harm these birds cause greatly exceeds their benefits; that we have developed a safe and effective bird control agent; and finally that we have the support of an informed public.

Now let us look at some of the things we as a government agency have been doing. Our present research program on blackbird depredations includes a variety of endeavors. Ecological studies are being made of blackbird populations, and have resulted in valuable information about their magnitude, distribution, and damage potential.

The laboratory and field testing of candidate bird management chemicals is a major Bureau research activity, and has resulted in promising bird control tools. The avicide DRC-1339 is a relatively safe chemical that shows great utility for controlling starlings at feedlots, and has been registered recently for this purpose.

This morning you saw a movie about the successful use of the chemical bird frightening agent, Avitrol 200, another promising damage control tool used in experiments at Sand Lake, South Dakota.

This past winter the Bureau conducted experimental treatments of roosting blackbirds and starlings, using wetting agents sprayed from aircraft. Our biologists are quite intrigued about exploiting this approach to population control, since our first tests show that treated birds may die even at temperatures well above freezing.

We consider studies in avian physiology and behavior essential to the development of bird management techniques. We seek to define and evaluate unique features of blackbirds that could be exploited for selective chemical bird control, so we are studying the enzymatic differences that may occur between birds and mammals. This is an attempt to find weak links in the body chemistry of these birds. Studies of avian sensory mechanisms have led to a patent on the application of chemicals to the feet of blackbirds, and also to additional research by industry.

This morning you heard about the mission of the Wildlife Services Division, so I will not elaborate. I do wish, however, to emphasize that our Services personnel are providing the vital link between

research findings and the people who are faced with blackbird and startling problems. As an example, there is need for more effective methods of reducing mass concentration of these birds in roosting areas where they appear to be most vulnerable. As safe, effective methods are developed, Wildlife Services personnel demonstrate them to the farmer or feedlot operator who is suffering losses.

These are a few highlights of our programs. Naturally, I believe that excellent progress has been made in certain areas of our research program, and that sufficient promise in other areas warrants much greater research emphasis. Furthermore, the Wildlife Services program now in operation on a limited basis will ultimately provide increased assistance to the farmer.

We live in an age where research and technological advancement have solved many of civilization's historic problems. It must be the same for bird control. The role of American agriculture in a future that may bring many to the brink of starvation, will become increasingly dependent upon securing greater yields from the existing land base. Losses due to birds will have to be controlled more effectively. To become more efficient in the face of increasing bird populations, and with a greater percentage of our human population living as consumers in the cities away from any direct contact with farm problems, it is unmistakably clear that we will have to develop new concepts and new approaches and new methods in dealing with the bird problem. The principal need then is for greater emphasis on fundamental studies of blackbird physiology, behavior, and ecology, and for the development of more specific and safer bird control chemicals.

Birds have high rates of metabolism and respiration, and high body temperatures. These and other physiological traits should be studied intensively to learn of possible new approaches for control. "Birth control" of birds has obvious aesthetic advantages over the outright killing of them, and this approach should receive much greater attention.

The scaring of birds will continue to be an important bird control measure, and many farmers still would be involved in "bird chasing" even if the continental population of blackbirds was reduced significantly. Basic studies of bird behavior are long overdue. A better understanding of the responses of problem birds to environmental stimuli would enable one to achieve better control of their movements and thus do a better job of crop protection.

We must intensify our ecological investigations if we are to understand adequately the biology of problem species, identify problem populations, and evaluate the probable effects of various control measures on them and on the environment.

Now let's consider avicides. What is needed are greatly expanded research programs in chemical screening and in the development and formulation of control chemicals. Although many of us view lethal control as a last resort, man is becoming less tolerant of losses to birds. As world food supplies become more critical because the exponential of population growth is becoming such a stark reality, producing food more efficiently and wasting less becomes increasingly more important. World food shortages will lead to increased pressure for the development of more effective and selective bird control chemicals.

The Bureau has learned much about the cultural factors affecting damage potentials in corn. Certain corn varieties, for example, are more resistant to blackbird attack than others, and this approach to damage control should be explored more fully.

Environmental pollution is of much concern today. The potential hazards of bird control chemicals on the environment must be carefully assessed in both experimental and operational applications, and this evaluation process will require a greater share of our resources.

Besides our research needs, we envisage greater dependence upon Wildlife Services programs of extension assistance to farmers. Bird damage problems are increasing in most of the 50 States, and our people are finding it more difficult to handle the numerous requests for technical assistance. Additional manpower will be needed in the future--but we believe that our present capabilities can be increased at little extra cost by closely correlating Bureau programs with those of State and other federal agencies that provide the public with information on ways of reducing bird damage. We can enhance our efficiency by making widescale use of modern mass media techniques.

Now that I've discussed our overall future needs, let's look at the immediate needs relative to the Ohio corn depredations problem. Ohio investigators have made a good start by unearthing much valuable information about the redwing population and the problem. A strong research effort in biology and population ecology should follow. The redwing population segments responsible for depredations must be identified as well as the factors that have led to the increase or concentration of these populations. The interrelationships of the Ohio-Ontario problem also need close examination.

An Ohio research program should be developed as a cooperative effort, with all aspects of the blackbird problem being studied on a concerted plan by University, State, and Federal scientists.

Besides the need for increased research in Ohio, it would be essential to beef up the Wildlife Services program of the Bureau. Additional biologists are needed for technical assistance programs now underway, to work with the State Extension Services in an expanded educational effort (including field demonstrations). The purpose of this program is to make sure that known methods of protection are made available to farmers with bird problems. Our people are also cooperating in a program of gathering and assessing data on crop damage. This fall a survey of corn damage is being planned by the Ohio people for all of the major damage areas, and Wildlife Services personnel will participate. This is a good example of how Services personnel can assist States with their immediate problems, and we hope that the survey will set a good example of what might be done in other States.

I know that you people in Ohio recognize what is needed to accomplish these research and management programs, and take pleasure in commending your representatives for the aggressive and forthright way in which they have approached the problem.

The Bureau has made excellent progress in ameliorating certain bird problems, but we have a long way to go toward solving the corn depredations problem. Research by State cooperators often has complemented the Bureau program--a good example is the research

on DRC-1339 residues done in California, which expedited the evaluation and registration of this compound. The regional blackbird project NE-49, sponsored by the Agricultural Experiment Stations in the Northeast, is another example of a valuable cooperative endeavor, and deserves our full support.

Research by our Bureau and cooperators will continue to produce improved and new methods for controlling bird problems, but the magnitude of these problems today warrants a greatly expanded research effort to assure a greater rate of progress. Ohio is a focal point for blackbird-corn depredation problems, and the various interests in the State have developed a fine coordinated program. Collectively, they seek a constructive approach to research and problem solving. Ohio has possibilities as a site for blackbird population management studies, which presumably would be applicable in other corn areas as well.

The Patuxent Wildlife Research Center at Laurel, Maryland, is responsible for bird depredations control research in eastern United States, and presently has several research substations located in specific bird problem areas (Florida, Arkansas, Delaware, Massachusetts). We believe that the critical nature of the Ohio corn depredations problem fully warrants the establishment of another research project in northern Ohio, an area where researchers could grapple with problems of much concern to corn growers everywhere, including those in neighboring Ontario.

Such a facility would intensify studies already mentioned and accelerate progress. An increase in the staff of the Division of Wildlife Services in Ohio would make possible more technical assistance to growers and would augment the research effort. The complexity of the problem requires close cooperation with State interests, and the bringing together of a diversity of scientific talent, so that highly imaginative interdisciplinary research and management programs can be undertaken. These scientists, organized into both research teams and extension projects, with adequate supporting staffs, equipment, facilities, and time, can and will make significant progress on this frustrating, challenging, yet not insoluble problem.